CLAIMS

What is claimed is:

1. A process for calibrating an AGC in a MIMO-based system, the process comprising:

transmitting a calibration signal;

receiving the calibration signal;

decoding the calibration signal to produce a measurement;

storing the measurement;

changing an AGC gain setting; and

repeating the transmitting, receiving, decoding, storing, and changing operations.

2. The method of claim 1, wherein the transmitting, receiving, decoding, storing, and changing operations are performed by a single multiple-input-multiple-output (MIMO) wireless device.

3. The method of claim 1, wherein the transmitting, receiving, decoding, storing, and changing operations are performed for each AGC gain setting.

4. The method of claim 1, wherein transmitting a calibration signal comprises transmitting a single frequency centered on a fast Fourier transformer bin.

5. The method of claim 1, further comprising generating a calibration signal by applying a non-zero coefficient to an inverse fast Fourier transformer.

6. The method of claim 1, wherein decoding the calibration signal comprises using a fast Fourier transformer.

7. The method of claim 1, further comprising accessing the measurement to improve AGC performance.

8. The method of claim 1, further comprising normalizing the measurement.

9. The method of claim 1, wherein transmitting a calibration signal comprises prepending a cyclic prefix to the calibration signal.

10. A MIMO-based system comprising an AGC, wherein the AGC is calibrated by way of an iterative process, the iterative process comprising:

transmitting a calibration signal;

receiving the calibration signal;

decoding the calibration signal to produce measurements;

storing the measurements; and

changing an AGC gain setting.

11. The system of claim 10, wherein the iterative process is repeated for each AGC gain setting.

12. The system of claim 10, wherein the AGC comprises a controller and at least one adjustable gain amplifier.

13. The system of claim 10, wherein the calibration signal comprises a single frequency centered on a fast Fourier transformer bin.

14. The system of claim 10, wherein the measurements are used to improve performance of the system.

15. The system of claim 10, further comprising increasing transmission power by *L* decibels after an AGC gain setting is decreased by *L* decibels, wherein *L* is specified by an end-user.

16. The system of claim 10, further comprising decreasing transmission power by *L* decibels after increasing an AGC gain setting by *L* decibels, wherein *L* is specified by an end-user.

17. The system of claim 10, further comprising:

producing a first measurement after decreasing the AGC gain setting by *L* decibels;

increasing transmission power by *L* decibels; and

repeating the first measurement without changing the AGC gain setting to produce a second measurement;

wherein *L* is specified by an end-user.

18. The system of claim 17, further comprising determining a correction factor, wherein said correction factor is equivalent to the quotient obtained by dividing the first measurement by the second measurement, and wherein subsequent measurements are multiplied by said factor.

19. The system of claim 18, wherein at least two factors are multiplied to produce a combined correction factor, and wherein subsequent measurements are multiplied by said combined correction factor.

20. A communication device comprising an AGC in a MIMO-based system, wherein the communication device is adapted to calibrate the AGC by performing for each AGC gain setting an iterative process, the iterative process comprising:

receiving a calibration signal;

decoding the calibration signal to produce measurements; and

storing the measurements.

21. The communication device of claim 20, wherein the AGC comprises a controller and at least one adjustable gain amplifier.